

Amendments to the Claims

Please amend Claims 7 and 25 to read as follows.

1. (Previously presented) A printhead comprising:

a plurality of printing elements for printing;

a block selection circuit that outputs a selection signal for selecting a block comprising a plurality of printing elements;

a printing control circuit which outputs a driving signal for selectively driving said printing elements, together with the selection signal, to each of said printing elements in correspondence with image data; and

an input portion, which receives external image data to be input to said printing control circuit,

wherein said input portion is adapted to receive the image data and block selection data input to said block selection circuit through common signal lines in a bus format of a plurality of bits from outside of the printhead.

2. (Previously presented) The printhead according to claim 1, wherein

said input portion is adapted to parallelly receive the image data over a plurality of signal lines.

3. (Previously presented) The printhead according to claim 1, wherein

said input portion is adapted to receive data in units of 4 bits.

4. (Original) The printhead according to claim 1, wherein said block selection circuit includes a decoder.

5. (Previously presented) The printhead according to claim 1, wherein each of said printing elements performs printing using heat energy.

6. (Previously presented) The printhead according to claim 1, wherein each of said printing elements performs printing by discharging ink.

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(Contd)*

7. (Currently amended) A printhead comprising:
a plurality of thermal printing elements for printing;
a block selection circuit that outputs a selection signal for selecting a block comprising a plurality of printing elements;
a printing control circuit which outputs a driving signal for selectively driving said printing elements, together with the selection signal, to each of said printing elements in correspondence with image data; and
an input portion, which receives external image data to be input to said printing control circuit,
wherein said input portion is adapted to receive the image data in a bus format of a plurality of bits, and the input portion includes a shift register for sequentially shifting the received image data with the same number of bits as the bus format.

8. (Previously presented) The printhead according to claim 7, wherein said input portion is adapted to parallelly receive the image data over a plurality of signal lines.

9. (Previously presented) The printhead according to claim 7, wherein said input portion is adapted to receive data in units of 4 bits.

10. (Previously presented) The printhead according to claim 7, wherein said input portion is adapted to receive data to be input to said block selection circuit together with the image data.

11. (Previously presented) The printhead according to claim 7, wherein said input portion is adapted to continuously receive the image data and data to be input to said block selection circuit.

12. (Original) The printhead according to claim 7, wherein said block selection circuit includes a decoder.

13. (Previously presented) The printhead according to claim 7, wherein each of said printing elements performs printing using heat energy.

14. ~~(Previously presented)~~ The printhead according to claim 7, wherein each of said printing elements performs printing by discharging ink.

9 ~~15.~~ (Previously presented) A printhead comprising:

a plurality of printing elements for printing;

a block selection circuit that outputs a selection signal for selecting a block comprising a plurality of printing elements;

a printing control circuit which outputs a driving signal for selectively driving said printing elements, together with the selection signal, to each of said printing elements in correspondence with image data; and

an input portion, which receives external image data to be input to said printing control circuit,

wherein said input portion is adapted to continuously receive the image data and data for setting a printing element driving time through common signal lines from outside of the printhead.

Claim 16 (cancelled)

10 ~~17.~~ (Previously presented) The printhead according to claim ~~15~~ 9, wherein said input portion is adapted to receive data to be input to said block selection circuit together with the image data.

~~11~~
18.

(Previously presented) The printhead according to claim ~~15~~⁹,

wherein said input portion is adapted to continuously receive the image data and data to be input to said block selection circuit.

~~12~~
19.

(Original) The printhead according to claim ~~15~~⁹, wherein said block

selection circuit includes a decoder.

~~13~~
20.

(Previously presented) The printhead according to claim ~~15~~⁹,

wherein each of said printing elements performs printing using heat energy.

~~14~~
21.

(Previously presented) The printhead according to claim ~~15~~⁹,

wherein each of said printing elements performs printing by discharging ink.

~~16~~
22.

(Previously presented) A method of driving a printhead including a

plurality of printing elements for printing, a block selection circuit for outputting a selection signal for selecting a block of a plurality of printing elements, a printing control circuit for outputting a driving signal for selectively driving the printing elements, together with the selection signal, to each of the printing elements in correspondence with image data, and input means for receiving external image data to be input to the printing control circuit, said method comprising the steps of:

causing the input means to receive the external image data and block selection data input to the block selection circuit through common signal lines in a bus format of a plurality of bits from outside of the printhead; and

causing the printing control circuit to drive the printing elements of the block selected by the block selection circuit in correspondence with the image data.

(Print)
¹⁷
~~23.~~ (Previously presented) The method according to claim ¹⁶~~22~~, wherein said receiving step comprises parallelly receiving the image data over a plurality of signal lines.

¹⁸
~~24.~~ (Previously presented) The method according to claim ¹⁶~~22~~, wherein said receiving step comprises receiving data in units of 4 bits.

25. (Currently amended) A method of driving a printhead including a plurality of thermal printing elements for printing, a block selection circuit for outputting a selection signal for selecting a block of a plurality of printing elements, a printing control circuit for outputting a driving signal for selectively driving the printing elements, together with the selection signal, to each of the printing elements in correspondence with image data, and input means for receiving external image data to be input to the printing control circuit, said method comprising the steps of:

causing the input means to receive the external image data in a bus format of a plurality of bits; and

causing the printing control circuit to drive the printing elements of the block selected by the block selection circuit in correspondence with the image data, wherein the input means includes a shift register for sequentially shifting the received image data with the same number of bits as the bus format.

*D¹
(anti)*

~~26.~~ (Previously presented) The method according to claim 25, wherein said receiving step comprises parallelly receiving the image data over a plurality of signal lines.

27. (Previously presented) The method according to claim 25, wherein said receiving step comprises receiving data in units of 4 bits.

~~28.~~ *20* (Previously presented) A method of driving a printhead including a plurality of printing elements for printing, a block selection circuit for outputting a selection signal for selecting a block of a plurality of printing elements, a printing control circuit for outputting a driving signal for selectively driving the printing elements, together with the selection signal, to each of the printing elements in correspondence with image data, and input means for receiving external image data to be input to the printing control circuit, said method comprising the steps of:

causing the input means to receive data for setting a printing element driving time continuously with the image data through the same signal lines as the image data from outside of the printhead; and

causing the printing control circuit to drive the printing elements of the block selected by the block selection circuit in correspondence with the image data.

Claim 29 (cancelled)

D' (contd)
²¹
~~20.~~ (Previously presented) The method according to claim ²⁰~~28~~, wherein said receiving step comprises receiving data input to the block selection circuit together with the image data.

²²
~~21.~~ (Previously presented) The method according to claim ²⁰~~28~~, wherein said receiving step comprises continuously receiving the image data and data to be input to the block selection circuit.

²⁴
~~22.~~ (Previously presented) A data output apparatus for outputting image data and a block selection signal to an input portion of a printhead, the printhead including (i) a plurality of printing elements for printing, (ii) a block selection circuit for outputting the selection signal for selecting a block of a plurality of printing elements, (iii) a printing control circuit for outputting a driving signal for selectively driving the printing elements together with the selection signal to each of the printing elements in correspondence with the image data, and (iv) the input portion, which receives external image data to be input to the printing control circuit, said apparatus comprising:

an output unit that outputs the image data and block selection data input to the block selection circuit to the printhead through common signal lines in a bus format of a plurality of bits.

²⁵
~~33.~~ (Previously presented) The apparatus according to claim ~~32~~, ²⁴

wherein the image data is parallelly output to the input portion over a plurality of signal lines.

²⁶
~~34.~~ (Previously presented) The apparatus according to claim ~~32~~, ²⁴

wherein data is output to the input portion in units of 4 bits.

²⁷
~~35.~~ (Previously presented) The apparatus according to claim ~~32~~, ²⁴

wherein each of the printing elements performs printing by discharging ink using heat energy.

Claims 36-39 (cancelled)

²⁸
~~40.~~ (Previously presented) A data output apparatus for outputting image

data to an input portion of a printhead, the printhead including (i) a plurality of printing elements for printing, (ii) a block selection circuit for outputting a selection signal for selecting a block of a plurality of printing elements, (iii) a printing control circuit for outputting a driving signal for selectively driving the printing elements in the block, the

printing control circuit adapted to output the driving signal together with the selection signal to each of the printing elements in correspondence with the image data, and (iv) the input portion, which receives external image data to be input to the printing control circuit, wherein said data output apparatus continuously outputs the image data and data for setting a printing element driving time to the printhead through common signal lines.

Claim 41 (cancelled)

D1 (Cmt)
~~30~~ 42. (Previously presented) The apparatus according to claim ~~40~~ 29,

wherein data supplied to the block selection circuit is output to the input portion, together with the image data.

~~31~~ 43. (Previously presented) The apparatus according to claim ~~40~~ 29,

wherein the image data and data supplied to the block selection circuit are continuously output to the input portion.

~~32~~ 44. (Previously presented) The apparatus according to claim ~~40~~ 29,

wherein each of the printing elements performs printing by discharging ink using heat energy.

⁷~~45~~. (Previously presented) The printhead according to claim 1, wherein said input portion is adapted to receive the image data and the block selection data in the same bus format.

Claim 46 (cancelled)

*D!
(init)* ¹⁵~~47~~. (Previously presented) The printhead according to claim ⁹~~15~~, wherein said input portion is adapted to receive the image data and the data for setting the printing element driving time in the same bus format.

¹⁹~~48~~. (Previously presented) The method according to claim ¹⁶~~22~~, wherein the input means receives the image data and the block selection data in the same bus format.

Claim 49 (cancelled)

²³~~50~~. (Previously presented) The method according to claim ²⁰~~28~~, wherein the input means receives the image data and the data for setting the printing element driving time in the same bus format.

~~28~~

~~31~~. (Previously presented) The apparatus according to claim ~~32~~, ²⁹

wherein said output unit outputs the image data and the block selection data in the same bus format.

Claim 52 (cancelled)

~~33~~

²⁹

~~33~~

(Previously presented) The apparatus according to claim ~~40~~,

wherein the image data and the data for setting the printing element driving time are output in the same bus format.

~~8~~

~~34~~

(Previously presented) The printhead according to claim 1, wherein

said input portion includes a shift register for sequentially shifting the received image data with the same number of bits as the bus format.
